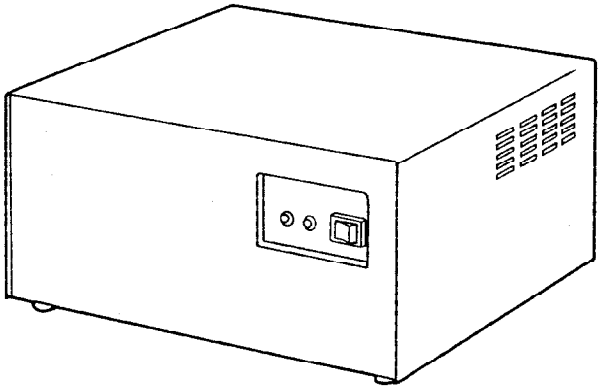
ORDER NO. KM48704458C3

Service Manual

SYSTEM BACK-UP UNIT

KX-A16B



■ SPECIFICATIONS

POWER SOURCE:	AC 115/200/220/240 V, 50/60 Hz
BATTERY:	3 "Sealed lead-acid Batteries" 12 V, 6.5 AH×3 (UL 924, NO MH13723)
EXCHANGE INTERVAL:	Every 3 years
CHARGE:	Constantly charging
FUSES:	AC Secondary; Located on the main PCB—250 V, 3 A (Time Lag Fuse) Batteries; Each battery is independently fused and the fuses are located under the cord on the rear of the unit. Each are rated at 250 V, 3 A. (Time Lag Fuses)
CHARGE TIME:	About 24 hours (If recharging is insufficient, the Battery Low Indicator will light.)
BACK UP DURATION:	Greater than 4 hours during average usage in the normal temperature (room).
ENVIRONMENT:	0°C–40°C
DIMENSIONS:	268 (W)×138 (H)×236 (D) mm (10 9/16"×5 7/16"×9 9/32")
WEIGHT:	10.4 kg (22 lb 14 oz)

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan

When you mention the serial number, write down the 11 digits. The serial number may be found on the label affixed to the rear of the unit.

LOCATION OF CONTROLS AND COMPONENTS

① Connect the DIN Jack to the Battery Back-up receptacle on the main unit.
② Check the Voltage Selector if it is set to your household AC voltage.
③ Plug the power cord into a power outlet.
④ Turn on KX-A16B Power Switch.
•During the KX-A16B is recharging, the Charge Indicator light will remain on.

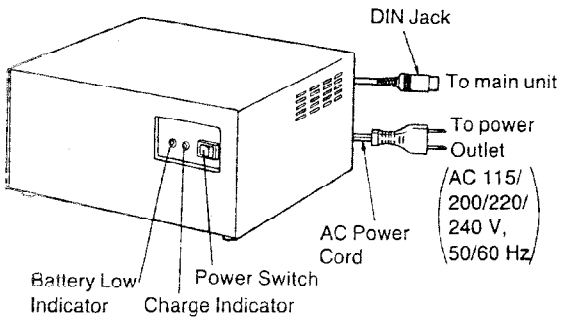


Fig. 1

- The KX-A16B requires to recharge for about 24 hours.
- The Battery Low Indicator will turn off when Battery is fully recharged.
- If the Battery Low Indicator light goes on, the KX-A16B will need to be recharged. If you leave it uncharged, the KX-A16B will be exhausted and stop the power supply.
- After installation, do not turn off the unit or the rechargeable batteries will become weak.
- The Battery is good for 3 years.

Voltage Selector
Check the Voltage Selector if it is set to your household AC voltage. If not, reset the Voltage Selector to the correct position with a screwdriver.

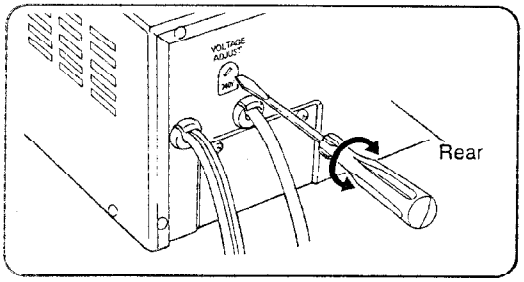


Fig. 2

PACKING MATERIALS

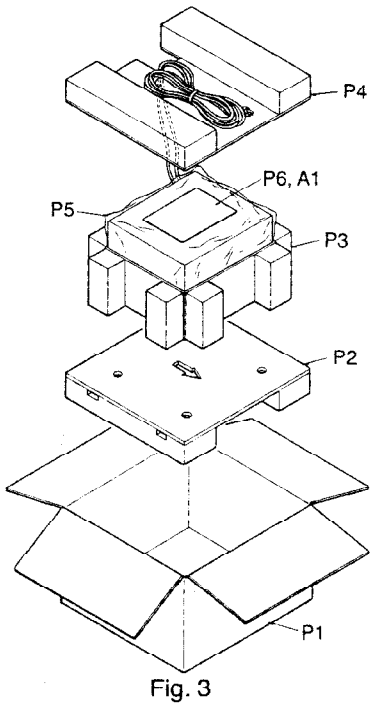


Fig. 3

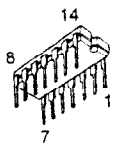
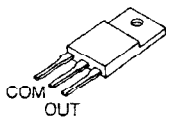
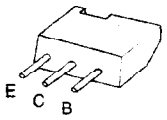
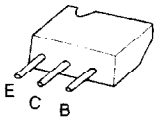
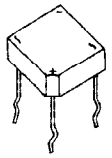
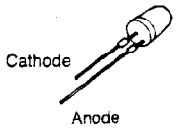
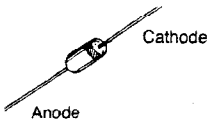
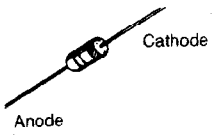
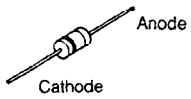
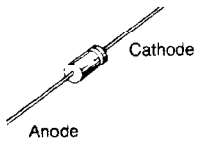
DISASSEMBLY INSTRUCTIONS

■ HOW TO REMOVE THE CABINET COVER AND P.C.BOARD.

1. Remove the 12 (twelve) screws ㉘ from cabinet cover. (Refer to Fig. 4.)
2. Remove the 5 (five) screws [28] from P.C.B. (Refer to Fig. 4.)

CAUTION: When repairing the KX-A16B, disconnect the battery connector (CN6).

TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 IC1	 IC3, 4	 Q1–5, 7, 9–12	 Q6, 8	 D1
 D3, 8	 D4–7, 9, 11, 13 15, 16, 17, 20, 24	 D10, 12, 22, 23, 25	 D14	 D18, 21

■ FOR SCHEMATIC DIAGRAM

Notes:

1. S1: Power switch in "OFF" position.
2. DC voltage measurements are taken with electronic voltmeter from negative line.

[CONDITION]

□: BATT1 (12.9 V), Power Switch (ON or OFF)
BATT LOW IND. (lights-out), BATT2, 3 (more than 12.5 V)

( ): BATT1 (11.8 V), Power Switch (OFF)
BATT LOW IND. (lighting), BATT2, 3 (more than 12.5 V)

< >: BATT1 (10 V), Power Switch (ON)
BATT LOW IND. (lights-out), BATT2, 3 (more than 12.5 V)

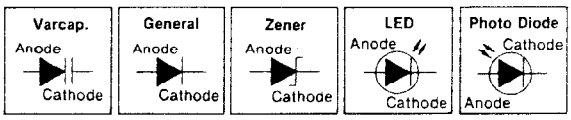
{BATT 1 (10 V), Power Switch (OFF)
BATT LOW IND. (lighting), BATT2, 3 (more than 12.5 V)} : All 0 V

3. This schematic diagram may be modified at any time with the development of new technology.

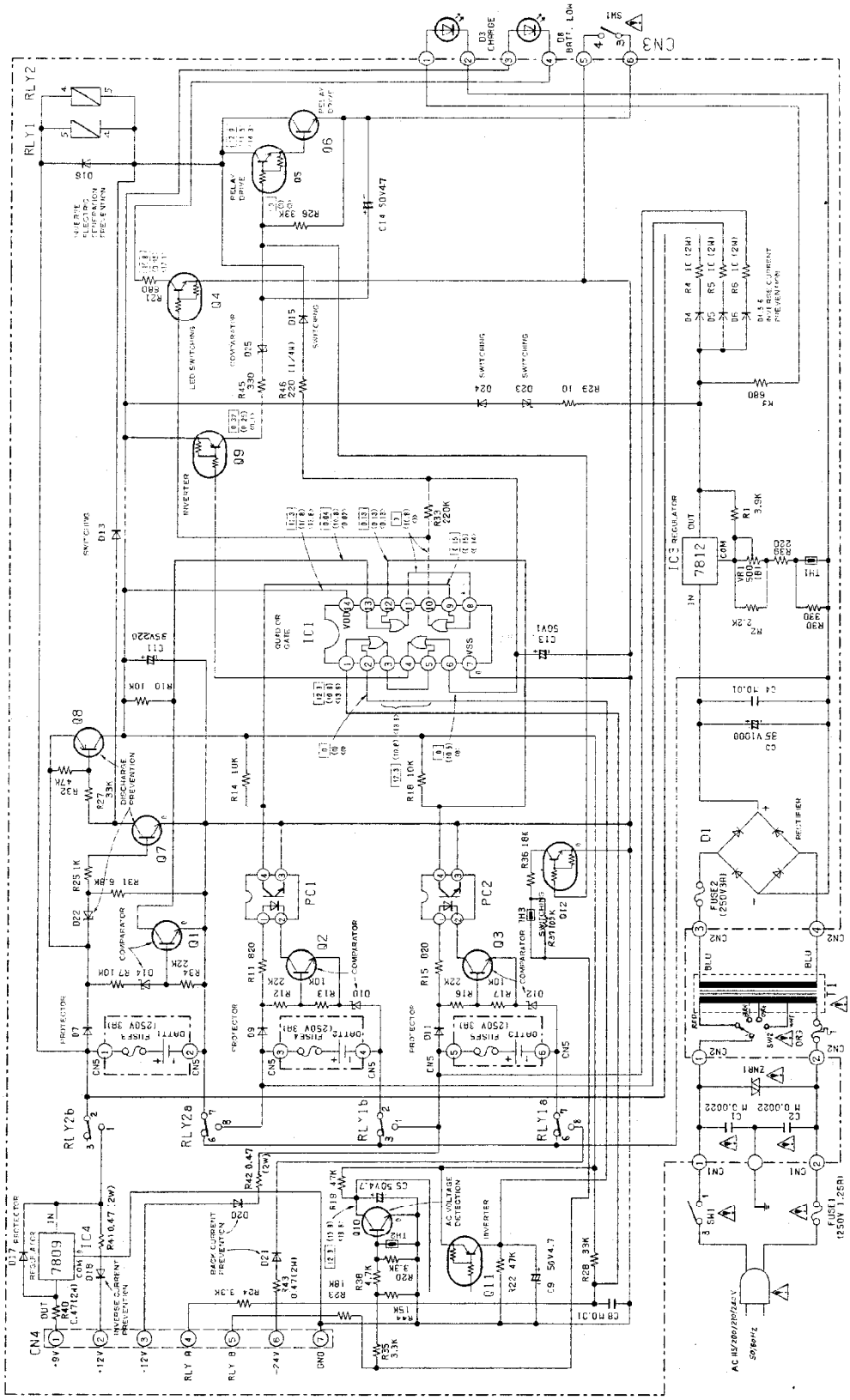
4.

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

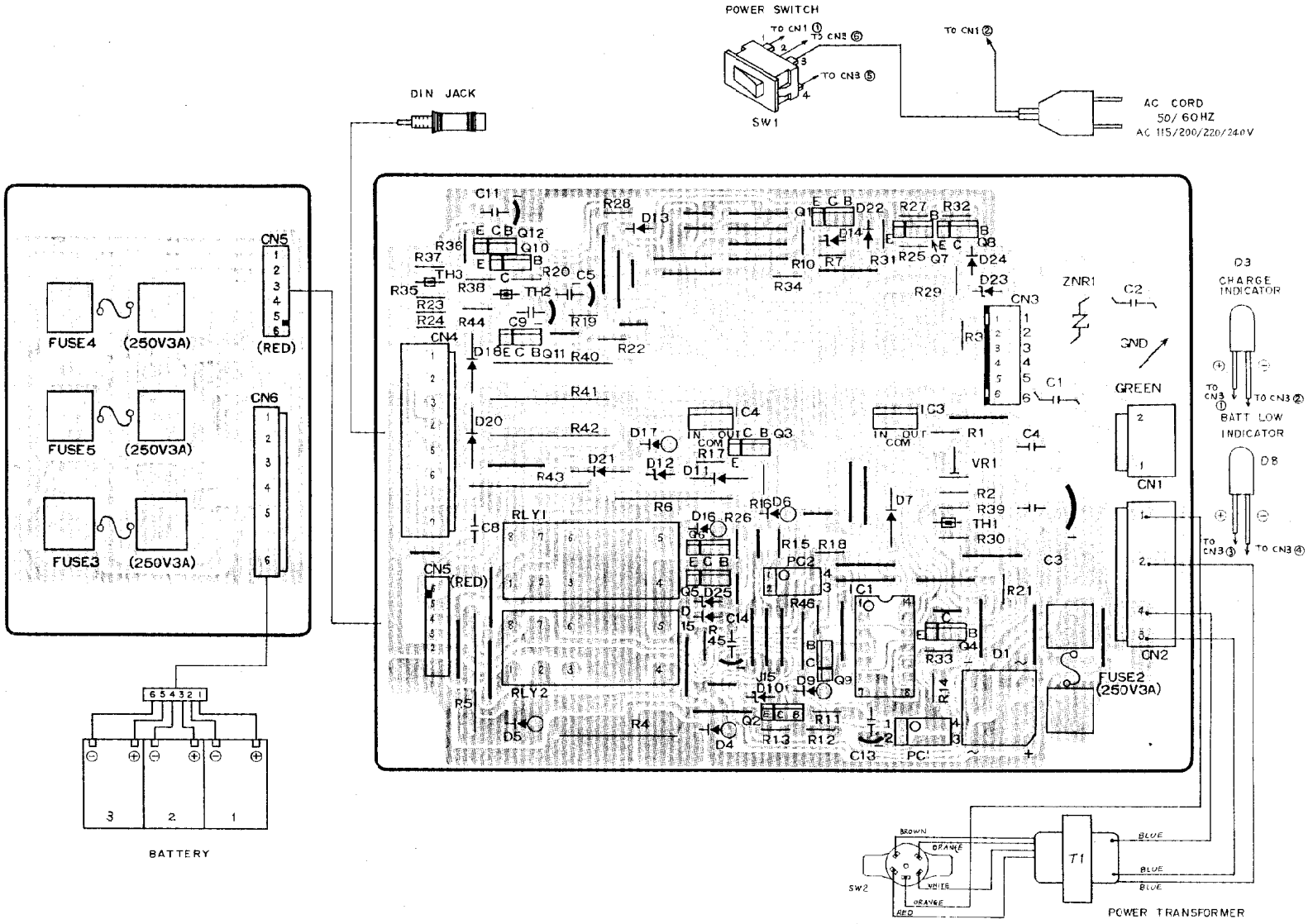
5.



SCHEMATIC DIAGRAM



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



CABINET & ELECTRICAL PARTS LOCATION

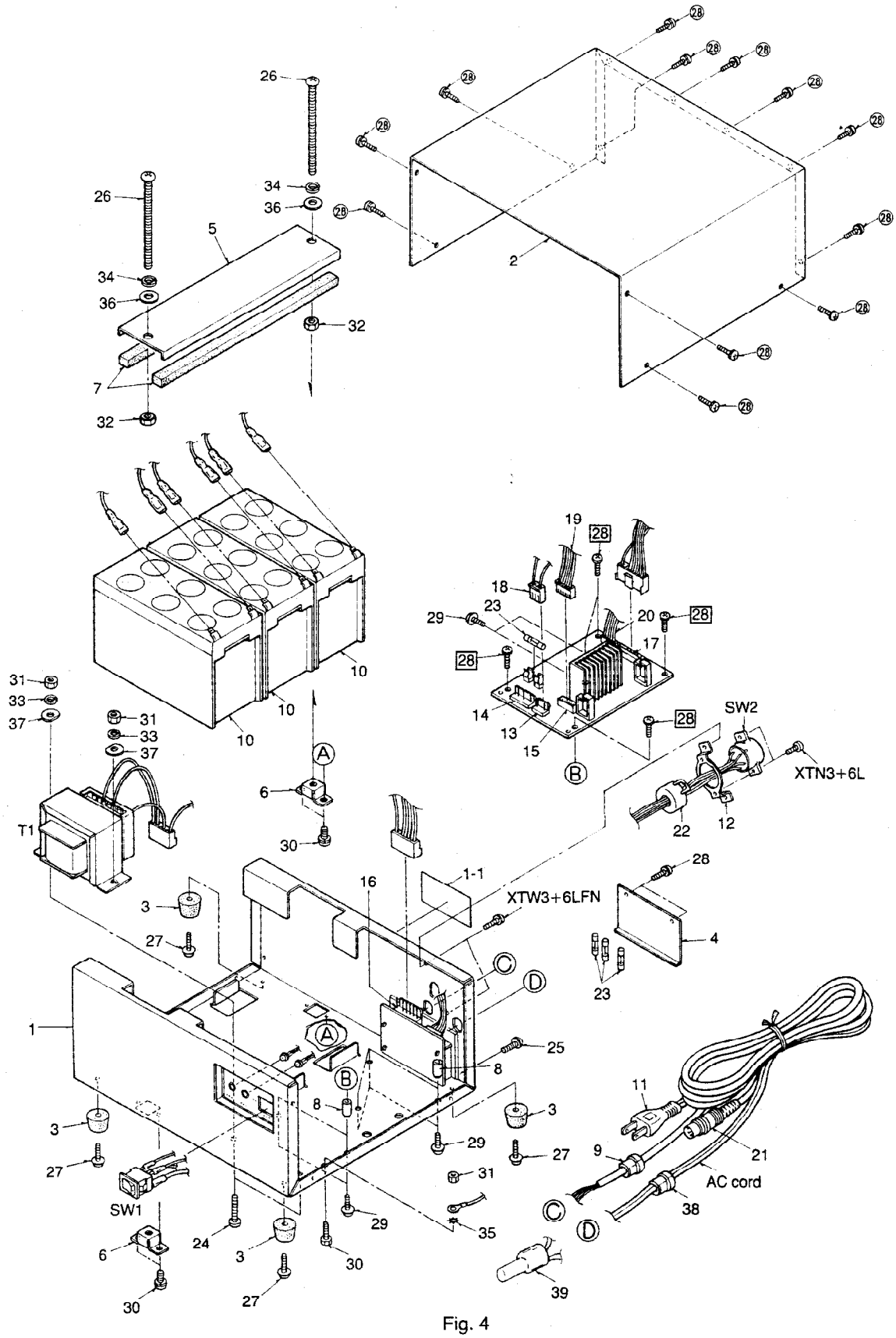
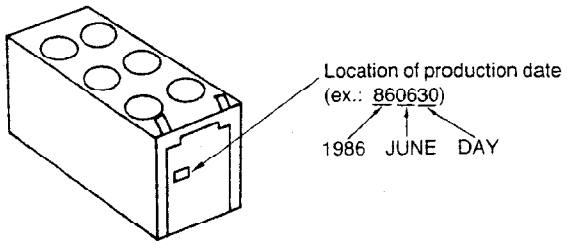


Fig. 4

Notes:

1. When replacing batteries (Ref. No. 10), always replace all three simultaneously.
2. Check the production date of the new batteries. Use only those produced within the last 3 years (from the date of replacement).



ADJUSTMENTS

■ CHARGE VOLTAGE ADJUSTMENT

Perform the following adjustment after replacing IC3, R1, R2, R30, R39, VR1 and TH1.

1. Connect the AC cord to the AC power source (AC 115/200/220/240 V, 50/60 Hz).
2. Set the power switch ON.
3. Connect the tester to D4 (cathode) and ground (⊖ line).
4. Adjust VR1 for a reading of table 1-A on the tester.
5. Connect the tester to D5 (cathode) and ground (⊖ line).
6. Confirm that the tester voltage reading agrees with that of table 1-B.
7. Connect the tester to D6 (cathode) and ground (⊖ line).
8. Confirm that the tester voltage reading agrees with that of table 1-B.

Table 1

	A	B
Room Temperature (°C)	Adjustment Voltage (V)	Adjustment Voltage (V)
15~18	14.54~14.59	14.54±0.4~14.59±0.4
18~23	14.45~14.56	14.45±0.4~14.56±0.4
23~27	14.33~14.47	14.33±0.4~14.47±0.4
27~30	14.28~14.35	14.28±0.4~14.35±0.4

■REPLACEMENT PARTS LIST

Notes: Model KX-A16B

1. Important safety notice.
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
2. The S mark indicates service standard parts and may differ from production parts.
3. RESISTORS & CAPACITORS
   Unless otherwise specified.
   All resistors are in OHMS(Ω) k=1000Ω,M=1000kΩ
   All capacitors are in MICRO FARADS(μF) P=μμF
   ※Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	ERW:Wirewound Resistor
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
RRD:Chip	ERO:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

※Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECCD,ECKD,ECBT:Ceramic
ECQS:Styrol	ECQM,ECQV,ECQG:Polyester
ECUV:Chip	ECEA,ECSZ :Electrolytic
ECMS:Mica	ECQP :Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A : 10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C : 16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

Ref.No.	Part No.	Part Name and Description	Pcs
		INTEGRATED CIRCUITS, TRANSISTORS AND DIODES	
IC1	MN4071B	IC	1
IC3	AN7812F	〃	1
IC4	AN7809F	〃	1
Q1,2,3,7,10	2SC2021M	Transistor(Si)	5
Q4	DTC124EA	〃	1
Q5	DTC143TA	〃	1
Q6	2SC2673	〃	1
Q8	2SA881	〃	1
Q9,11	DTA124EA	〃	2
Q12	DTC144WA	〃	1
D1	PQVD2B4B41	Diode(Si)	1
D3	PQVDTLG147	LED	1
D4-7,9,11,16,17,20	1SR35-200	Diode(Si)	9
D8	PQVDTLR147	LED	1
D10,12,22,25	MA4091	Diode(Si)	4
D13,15 24	1SS131	〃	3
D14	MA4100	〃	1
D18,21	PQVDEK03	〃	2
D23	MA4036	〃	1
		VARIABLE RESISTOR	
VR1	PQNB3A00B52M	Semi-Fixed Resistor,500Ω (B)	1
		VARISTOR	
ZNR1	ERZC14DK431U	Varistor ⚠	1

Ref.No.	Part No.	Part Name and Description	Pcs
		SWITCHES	
SW1	PQST2A01Z	Switch, Power ⚠	1
RLY1,2	PQSL43Z	Relay	2
SW2	PQSR4A02Z	Switch, Voltage Selector ⚠	1
		PHOTO COUPLERS	
PC1,2	PQVIPC817K	Photo Coupler	2
		TRANSFORMER	
T1	PQLT5M9X3A	Power Transformer ⚠	1
		THERMISTERS	
TH1	ERTD2ZFJ101S	Thermister	1
TH2	ERTD2ZIK154S	〃	1
TH3	ERTD2ZGK202S	〃	1
		CABINET AND ELECTRICAL PARTS	
1	PQYMA16BX	Cabinet Body Assembly	1
1-1	PQGT246Z	Name Plate	1
2	PQKF68Z	Cabinet Cover	1
3	PQHG414Z	Rubber Foot	4
4	PQMD1008Z	Fuse Cover	1
5	PQMD4009Z	Bracket, Battery M'tg	1
6	PQMD4010Z	〃 , 〃	2
7	PQHG101Z	Rubber	2
8	PQHD14Y	Spacer	5
9	PQHR104Z	Cord Bushing	2
10	LCR12V6.5P	Battery	3
11	RJA52Y	AC Cord ⚠	1
12	PQMD2008Z	Angle	1
13	PQJP2D12Z	Connector, 2P	1
14	PQJP4D17Z	〃 , 4P	1
15	PQJP6D33Z	〃 , 6P	1
16	PQJP6D36Z	〃 , 6P	1
17	PQJP7D21Z	〃 , 7P	1
18	PQJS2L36Z	〃 , 2P	1
19	PQJS6L13Z	〃 , 6P	1
20	PQJS6L12Z	〃 , 6P	1
21	PQJS7J1Z	〃 , 7P(DIN Jack)	1
22	RUV387Z	Cover, Voltage Selector SW	1
23	XBA2C30ND1	Fuse	4
24	XVG4E10FY	Volt, 4×10	2
25	XSN4D8FN	Screw, 4×8	1
26	XSN6+105FY	〃 , 6×105	2
27	XST3+12FXKS	〃 , 3×12	4
28	XYN3+C8FNS	〃 , 3×8	19
29	XYN3+F8	〃 , 3×8	7
30	XYN4+C8FY	〃 , 4×8	5
31	XNG4B	Nut	3
32	XNG6A	〃	2
33	XWA4B	Washer	2
34	XWA6B	〃	2
35	XWC4BFN	〃	1
36	XWG6	〃	2
37	XWT4	〃	2
38	RHR111	AC Cord Bushing	1
39	RHR153Z	Connector Cap	1
		PACKING MATERIALS	
P1	PQPK443Z	Gift Box	1
P2	PQPN610Z	Pad, Lower	1
P3	PQPN611Z	〃	1
P4	PQPN612Z	〃 , Upper	1
P5	PQPH68Z	Protection Cover	1
P6	PQQX9146Z	Instruction Book	1
A1	RJP120ZS	Plug for AC Cord	1

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
		RESISTORS			
R1	ERD16TJ392	3.9k	R24	ERD16TJ332	3.3k
R2	ERD16TJ222	2.2k	R25	ERD16TJ102	1k
R3	ERD16TJ681	680	R26	ERD16TJ333	33k
R4	ERG2ANJP100S	10	R27	ERD16TJ333	33k
R5	ERG2ANJP100S	10	R28	ERD16TJ333	33k
R6	ERG2ANJP100S	10	R29	ERD16TJ100	10
R7	ERD16TJ103	10k	R30	ERD16TJ331	330
R8	Not Used		R31	ERD16TJ682	6.8k
R9	〃		R32	ERD16TJ473	47k
R10	ERD16TJ103	10k	R33	ERD16TJ224	220k
R11	ERD16TJ821	821	R34	ERD16TJ223	22k
R12	ERD16TJ223	22k	R35	ERD16TJ182	1.8k
R13	ERD16TJ103	10k	R36	ERD16TJ153	15k
R14	ERD16TJ103	10k	R37	ERD16TJ104	100k
R15	ERD16TJ821	820	R38	ERD16TJ472	4.7k
R16	ERD16TJ223	22k	R39	ERD16TJ221	220
R17	ERD16TJ103	10k	R40	ERG2ANJPR47S	0.47
R18	ERD16TJ103	10k	R41	ERG2ANJPR47S	0.47
R19	ERD16TJ473	47k	R42	ERG2ANJPR47S	0.47
R20	ERD16TJ332	3.3k	R43	ERG2ANJPR47S	0.47
R21	ERD16TJ681	680	R44	ERD16TJ153	15k
R22	ERD16TJ473	47k	R45	ERD16TJ331	330
R23	ERD16TJ183	18k	R46	ERD25TJ221	220
		CAPACITORS			
C1	ECKDKC222KB	0.0022⚠	C8	ECKD1H103MD	0.01
C2	ECKDKC222KB	0.0022⚠	C9	ECEA1HU2R2	2.2
C3	ECEA1VU102	1000	C10	Not Used	
C4	ECKD1H103MD	0.01	C11	ECEA1EU221	220
C5	ECEA1HU2R2	S 2.2	C12	Not Used	
C6	Not Used		C13	ECEA1HU010	1
C7	〃		C14	ECEA1HU470	47

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